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**SUPPLY OF EIGHT ELECTRIC ELEVATORS AND OF TWENTY-SIX ELECTRIC SEMIGANTRY YARD CRANES FOR THE PORT OF DAIR**

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**MATERIAL SPECIFICATIONS**

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**I) SUPPLY OF EIGHT ELECTRIC ELEVATORS.**

These elevators should have an elevating power of 5 tons, and measure at least 2,50 meters in width and 5 meters in depth.

They should service two stories, the first located at 3,50 M above the basement, the other at 7 meters above the floor of the 1st story, which totals up 10,50 meters in height.

We wish to point out that the current to feed these units is three-phase current, 400 Volts, 50 pc. which can be set to a lower voltage by a transformer to be supplied with the unit. (0 - 400 Volts ( $\pm$  10%)

THE OFFERS REGARDING THIS MATERIAL SHOULD BE BEFORE US ON THE 10TH OF OCTOBER 1949 AT THE LATEST

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**II) SUPPLY OF TWENTY-SIX ELECTRIC SEMIGANTRY YARD CRANES WITH RACK**

It is stated that except for the semigantry, these 26 cranes should be exactly the same and come under specifications listed hereafter.

Each crane should be installed on a semigantry with metallic framework which can be mechanically moved on rails specially built to this end by the port which will utilize the cranes. These rails will carry the swivel unit of the crane which is to consist of all the elevating and steering mechanisms, of the elevating unit of the boom, of the control of the boom itself and of the control operation cabin.

**-1) Track width**

The distance from centre to centre of the tables of the rails for rack rails, or the distance from centre to centre of the racks for VIGNOLE twin rails is:

|                         |
|-------------------------|
| 12 meters for 24 cranes |
| 5 " " 2 "               |

The difference of levels between the low rails and the top rail is 0,50 M.

**-2) Radius of the crane**

The useful radius from the centre pivot of the crane, variable even for test loads, will be 30 meters at 10 meters, this radius being covered before the limiting device for the variation of the crane radius is operated.

~~Classified information for U.S. Officials~~

-3) Elevating power.

All the cranes should be designed so as to work with a hook. They will be of two different types:

- a) 5 ton cranes
- b) double elevating power cranes : lifting either 5 tons to 52 M or 6 " 52 M

with all necessary safety devices, so as to make it possible to increase the radius of the crane beyond 32 meters for loads superior to 5 tons.

The static test load for the maximum radius of the crane will be 8 tons for the 5 ton cranes and 9 tons for the 6 ton cranes, without warranty as to the speed of the movement.

-4) Pivots of the crane

Suppliers will be free to set this pivot wherever they think it fit.

-5) Height

The useful height above the bucket or the useful height of the hook, when the crane has come to its maximum radius, - height to be measured from the rail toward the dock - is 22 meters.

This elevation is to be attained while operating the elevator top limiting device.

Rather the hook of the compensation device, or simply the hook, according to the type of crane, should be able to come down to 18 meters below the front rail.

-6) Height of the floor of the control cabin

This floor will be at 18 meters above the rail towards the dock.

-7) Elevating speed when the crane is moving 16 meters

- a) 5 ton cranes : 1,00 meter per second
- b) 6 " " " 1,00 " " "

-8) Angular speed

- a) At maximum radius: 1 revolution per 60 seconds
- b) At minimum radius: 1 revolution per 60 seconds by automatic variation.

-9) Speed of variation of radius

From maximum radius to minimum radius or reciprocally : 18 sec.

-10) Travelling speed of the crane

When covering a 20 meter distance forward or backward : 20 M/sec.

All hereabove mentioned speeds (under 7°, 6°, 5° and 10°) should be performed the crane being out of gear at the start, under normal load and no wind.

-11) Electric current

The current feeding the cranes is threephase, 400 Volts ( $\pm 10\%$ ) between phases at terminals of transformer and 50 ps. The current for lighting and eventually for feeding the control circuits will be set to a 24 Volts tension by a transformer to be included in the furnishing of each crane.

-12) Miscellaneous

Any operation should be possible for as much as the pressure of the wind is inferior to 50 Kgs per square meter, as well on the crane itself as on a parcel of 2 square meter surface per ton of crane normal power.

The cranes will be operated by only one operator.

It should be possible to perform all movements at the same time.

For all movements, the speed should be graduated according to the operating necessities and more particularly it should be possible to set the speed at a fourth of the value of the maximum speed stated hereabove.

Starting will be very progressive and it should be easy to perform movements of a very slight amplitude in any direction.

Braking should also be very progressive for any kind of movement, in order to limit its effect on the whole unit; it should nevertheless be very efficient and prove perfectly safe.

-13) Crane specifications

The crane should clear completely a vertical plane parallel to the edge of the platform distant of 1 meter from the centre of the running rail toward the dock at 10 meters height.

The half width of the feet in a direction perpendicular to the track width cannot be more than 0,40 M on each side of the center of the track.

The free height under the horizontal part of the superstructure cannot be less than 5,50 M above the rail closest to the dock, except for a triangular surface of 4 meter base and three meter height toward the leg.

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The lowest part of the swivel unit cannot be at less than 11,50 M above the highest rail, except for the parts which, when in horizontal projection, do not protrude the gantry itself even during the steering of the cranes.

The rear parts of two identic neighbouring cranes, even when working with rear parts facing each other, should not run against each other, including the fixed or mobile balanceweights.

-14) All the sections of the gantry which might have to stand shocks from the parcels should be specially reinforced and if necessary protected by pieces of wood easily replaced.

The lower stringers of the gantry should be at least at 0,40 M above the rails and bear the head of the hydraulic jacks to be used for inspecting the axles articulating the bogeys on the gantry in case of wreckage of the jacks mentioned hereafter under 14 bis.

The stationary sections of the gantry should be very strongly framed and stayed; the upper frame should rest on four legs ending on the lower struts perpendicularly to the axles of the bogeys, the whole unit to be perfectly rigid.

The legs of the gantry to be designed so as their length might be shortened wherever it be necessary of a length equal to about  $\frac{1}{3}$  of the space between the running tracks.

#### -14 bis ) - ACCESSORIES OF THE GANTRY

Four jacks made of high tensile steel designed to clamp the crane at work and at rest should be installed on the gantry.

They will rest on the running rails and it should be easy to put them down.

Rail guards will swing aside all foreign substances which might stand in the way for smooth rolling of the bogeys either forward or backward.

#### -14 ter) Motion Mechanism

Normally the crane will be set in motion by the engine, its swivel unit to be directed wherever desired. But for emergencies it should be possible to substitute either man, truck or capstan power.

#### 15) Elevation system

The 5 ton cranes will be equipped with one cable only, the double power cranes of 5 and 8 tons will have either a single cable or a compensation device.

In case they are equipped with a compensation device the hauling force will be equally balanced between the two cables by a perfectly safe device not in use should be hoisted to the top of the boom and should not interfere with the movements of the compensation device at work.

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The elevating speed will be specially graduated and besides it will be possible to set it so as not to exceed the fourth of the maximum speed mentioned under paragraph 5. This condition is to be observed rigorously in order to permit precise manoeuvring in the hatches of the ships.

When not loaded the crane should be manoeuvred at a speed at least equal to the elevating speed, the engine power being used if necessary to start the motion.

The other specification regarding this material are those of the manufacturer.

It should be pointed out nevertheless that hereabove specifications should be looked upon as general data, except for dimensions, power and so on.

OFFERS REGARDING MATERIAL mentioned under -II- should be before us ON THE 15th of NOVEMBER AT THE LATEST.

But each tender should be taken separately as a different supply. It is possible to put in offers for one of them only.

Auto-Corporation S. A.